Latex Diagram Referrence

For Mathematics

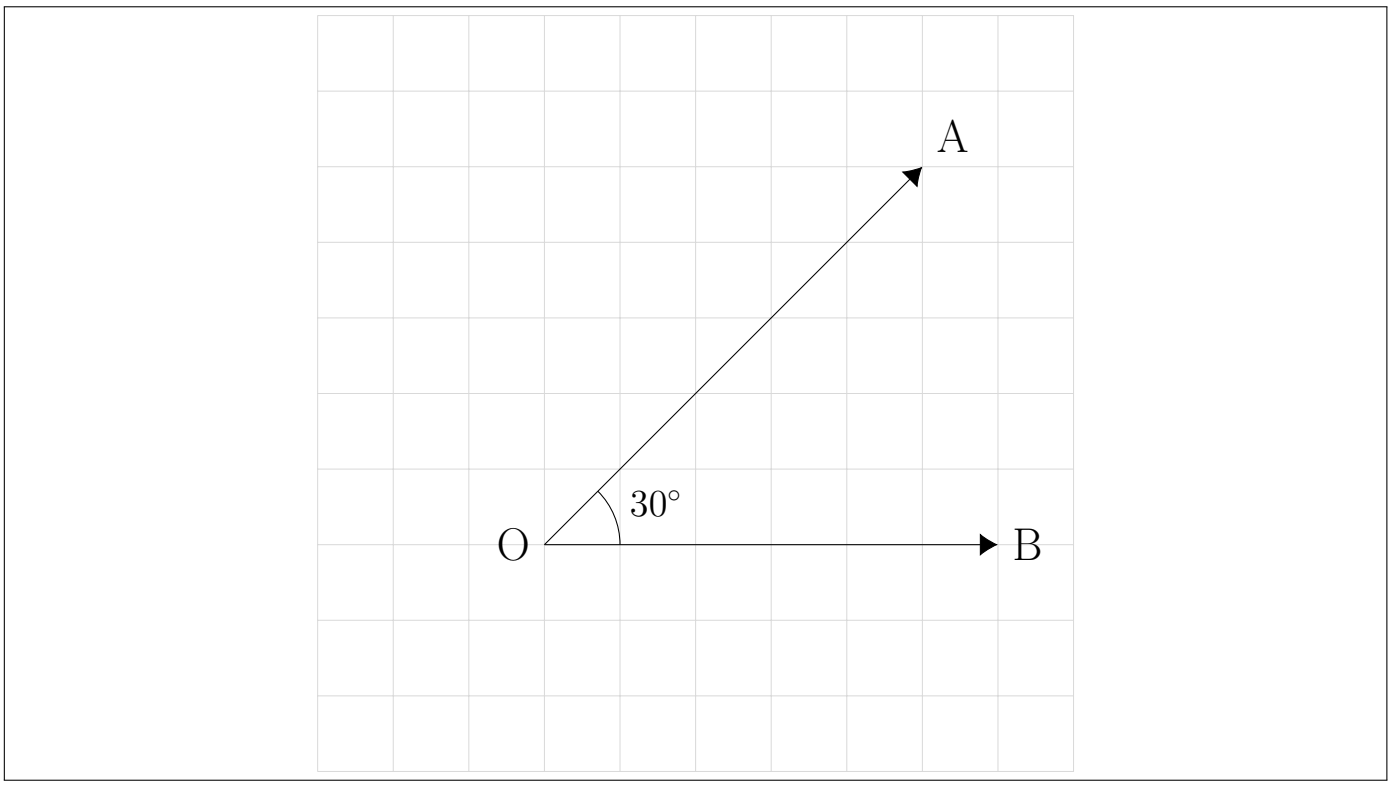
Contents

1 Background Grid

```
\begin{tikzpicture}

  \draw[very thin, gray!30, step=1 cm](-5,-5) grid (5,5);

\end{tikzpicture}
```

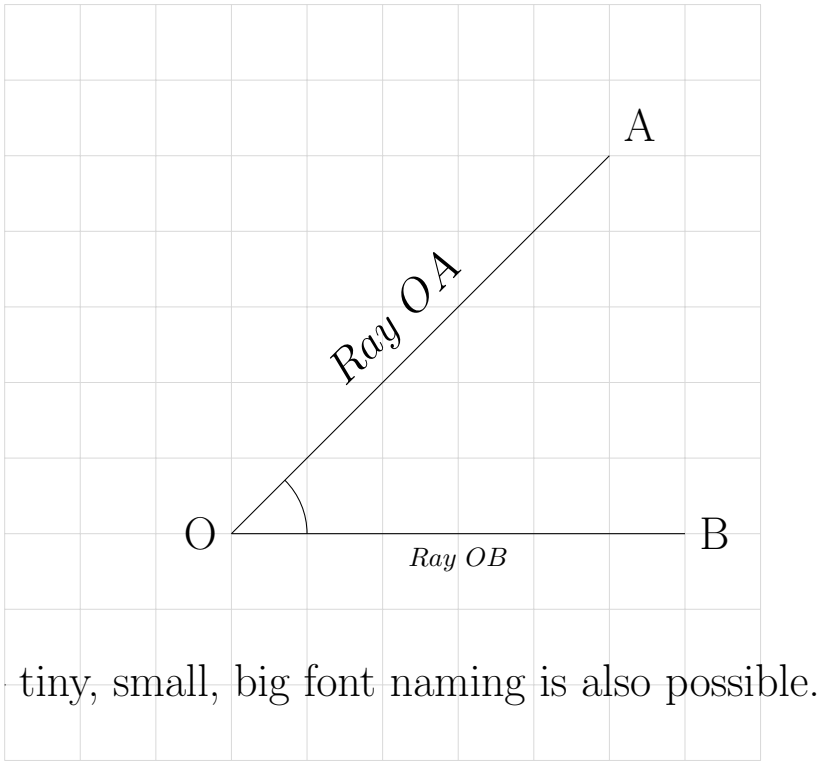
2 Angle

```
\begin{tikzpicture}
 \draw[very thin, gray!30, step=1 cm](0,0) grid (10,10);
 \draw [>={LaTeX[width=3mm,length=2.4mm]},->](3,3) node[left]{O
    }--(8,8) node[above right]{A};
 \draw [>={LaTeX[width=3mm,length=2.4mm]},->](3,3)--(9,3) node[
    right]{B};
  \draw (4,3) arc (0:45:1cm);
  \draw (3,3) node[anchor=north, xshift=42pt, yshift=26pt, font=\
     small] {$30\degree$};
\end{tikzpicture}
```



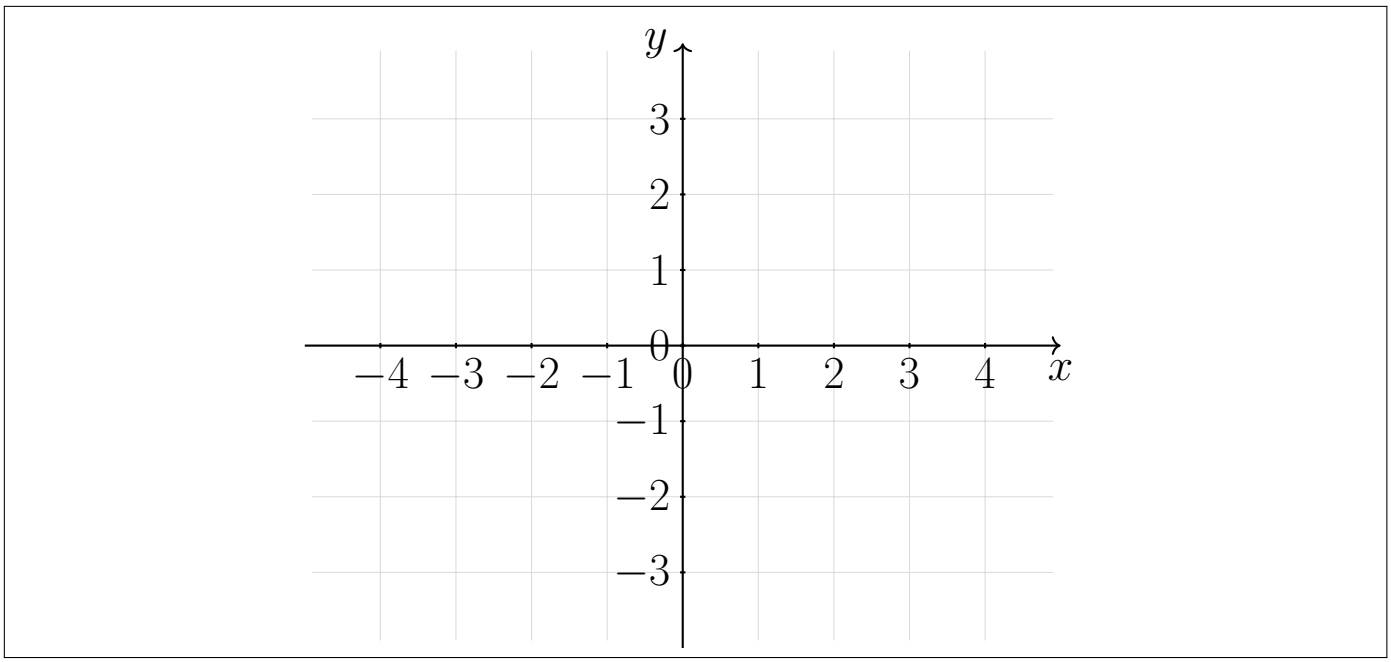
3 Angle - Slope Naming and Font Change

```
\begin{tikzpicture}
 \draw[very thin, gray!30, step=1 cm](0,0) grid (10,10);
 \draw (3,3) node[left]{O}-- node[above,sloped]{$Ray\,\,OA$}(8,8)
    node[above right]{A};
 \draw (3,3)--node[below,sloped]{\scriptsize $Ray\,\,OB$}(9,3)
    node[right]{B};
  \draw (4,3) arc (0:45:1cm);
 \draw (0,1)--(0,1) node[right]{tiny, small, big font naming is
    also possible.};
\end{tikzpicture}
```



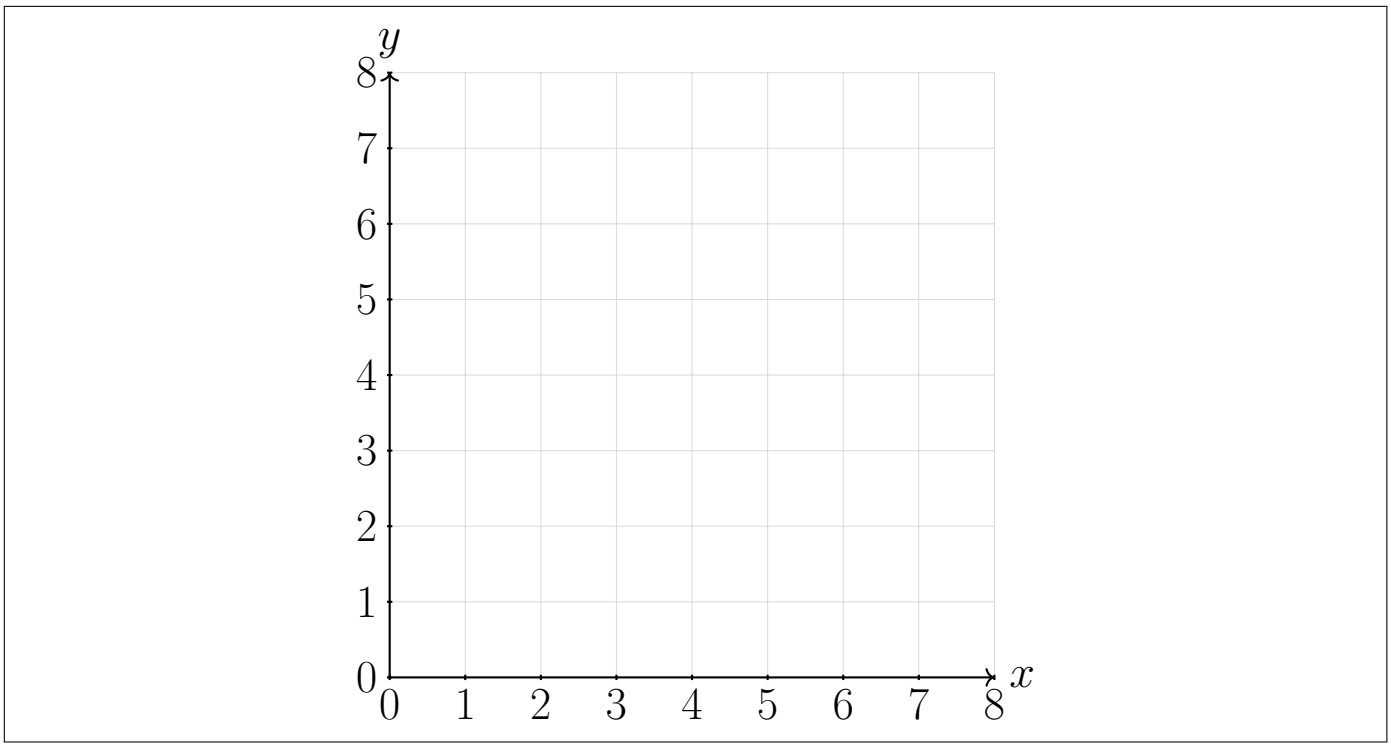
4 Cartesian Coordinate System - Mid Origin

```
\begin{tikzpicture}
  \draw[very thin, gray!30, step=1 cm](-4.9,-3.9) grid (4.9,3.9);
  \draw [thick] [->] (-5,0)--(5,0) node[right, below] {$x$};
   \foreach \x in {-4,...,4}
     \draw[xshift=\x cm, thick] (0pt,-1pt)--(0pt,1pt) node[below]
        {$\x$};
    \draw [thick] [->] (0,-4)--(0,4) node[above, left] {$y$};
   \foreach \y in {-3,...,3}
     \draw[yshift=\y cm, thick] (-1pt,0pt)--(1pt,0pt) node[left]
        {$\y$};

\end{tikzpicture}
```



5 Cartesian Coordinate System - Bot Left Origin

```
\begin{tikzpicture}
  \draw[very thin, gray!30, step=1 cm](0,0) grid (8,8);
  \draw [thick] [->] (0,0)--(8,0) node[right] {$x$};
   \foreach \x in {0,...,8}
     \draw[xshift=\x cm, thick] (0pt,-1pt)--(0pt,1pt) node[below]
        {$\x$};
    \draw [thick] [->] (0,0)--(0,8) node[above] {$y$};
   \foreach \y in {0,...,8}
     \draw[yshift=\y cm, thick] (-1pt,0pt)--(1pt,0pt) node[left]
        {$\y$};

\end{tikzpicture}
```



6 Pair Of Straight Lines

```
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Requires :
{\usepackage{gensymb}
\usetikzlibrary{arrows.meta}
==============
```
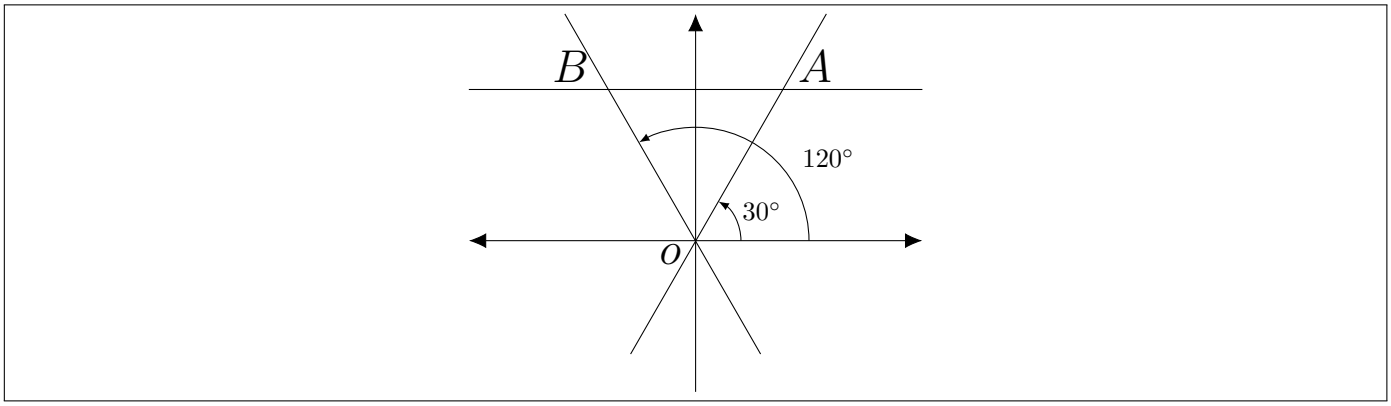
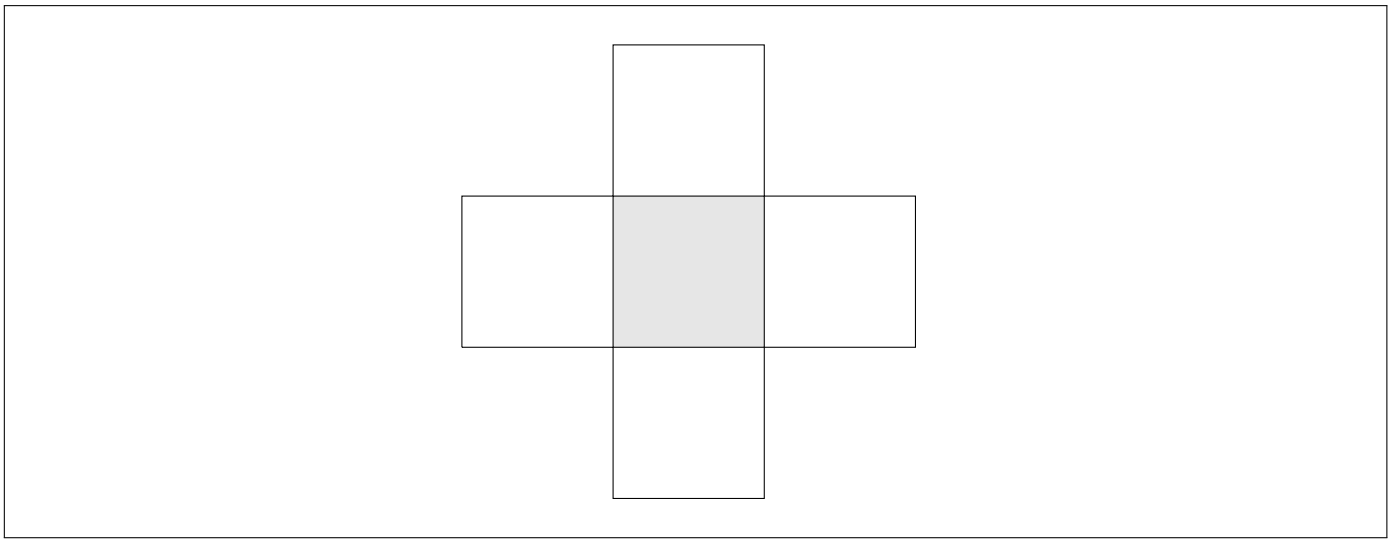

```
\begin{tikzpicture}
\draw [>={LaTeX[width=2mm,length=2.3mm]},<->](-3,0) -- (3,0); %% X-AXIS
\draw [>={LaTeX[width=2mm,length=2.3mm]},->](0,-2) -- (0,3); %% Y-AXIS
\draw (-3,2) -- (3,2);
\draw (-0.86,-1.5) -- (1.73,3);
\draw (-1.73,3) -- (0.86,-1.5);
\draw (0,0) node[anchor=north east,yshift=4pt] {$o$} ;
\draw (0,0) node[anchor=north, xshift=45pt, yshift=77pt] {$A$} ;
\draw (0,0) node[anchor=north, xshift=-47pt, yshift=77pt] {$B$};
\draw (0,0) node[anchor=north, xshift=50pt, yshift=40pt, font=\scriptsize] {$120\degree$};
\draw (0,0) node[anchor=north, xshift=25pt, yshift=20pt, font=\scriptsize] {$30\degree$};
\draw[-latex] (0:0.6cm) arc (0:60:0.6cm);
\draw[-latex] (0:1.5cm) arc (0:120:1.5cm);
\end{tikzpicture}
```



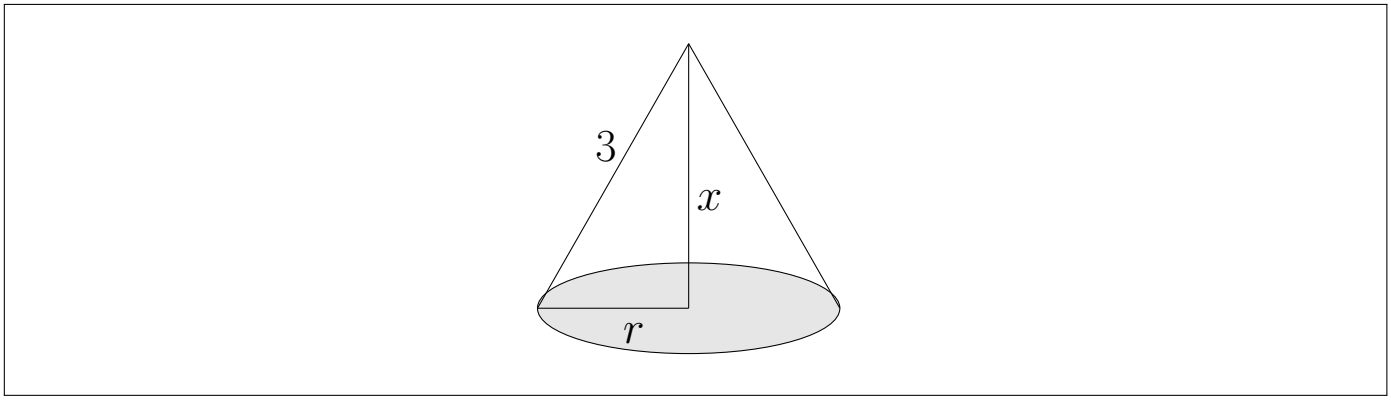
7 Cube - Unfolded

```
\vspace*{4mm} %to keep box edge little away
\begin{tikzpicture}
\draw (0,0) -- (0,2) -- (2,2) -- (2,4) -- (4,4) -- (4,2) -- (6,2) --
    (6,0) -- (4,0) -- (4,-2) -- (2,-2) -- (2,0) -- (0,0) ;
\filldraw[fill=gray!20] (2,0) rectangle (4,2);
\end{tikzpicture}
\vspace*{4mm} %to keep box edge little away
```



8 Cone

```
\vspace*{4mm} %to keep box edge little away
\begin{tikzpicture}
\filldraw[fill=gray!20](0,0) ellipse (2cm and 0.6cm);
\draw (0,0) -- node[below] {\ \ \ $x$}(0,3.5);
\draw (0,0) -- node[below] {\ \ \ $r$} (-2,0);
\draw (-2,0) --node[above] {3\ \ }(0,3.5);
\draw (2,0) -- (0,3.5);
\end{tikzpicture}
\vspace*{4mm} %to keep box edge little away
```



9 Cartesian Coordinate System - 1

```
\begin{tikzpicture}
  \draw[very thin, gray!30, step=1 cm](-4.9,-3.9) grid (4.9,3.9);
  \fill [gray!10, domain=-2:2, variable=\x]
   (-2, 0) -- plot ({\x}, {\x*\x}) -- (2, 0) -- cycle;
  \draw [thick] [->] (-5,0)--(5,0) node[right, below] {$x$};
   \foreach \x in {-4,...,4}
     \draw[xshift=\x cm, thick] (0pt,-1pt)--(0pt,1pt) node[below]
        {$\x$};
    \draw [thick] [->] (0,-4)--(0,4) node[above, left] {$y$};
   \foreach \y in {-3,...,3}
     \draw[yshift=\y cm, thick] (-1pt,0pt)--(1pt,0pt) node[left]
        {$\y$};

  \draw [domain=-2:2, variable=\x]
    plot ({\x}, {\x*\x}) node[right] at (1.5,2) {$f(x)=x^2$};
\end{tikzpicture}
```